SIGNIFICANT NEW DISTRIBUTIONAL RECORDS FOR THE GENUS SPHAGNUM IN THE NORTHEASTERN UNITED STATES

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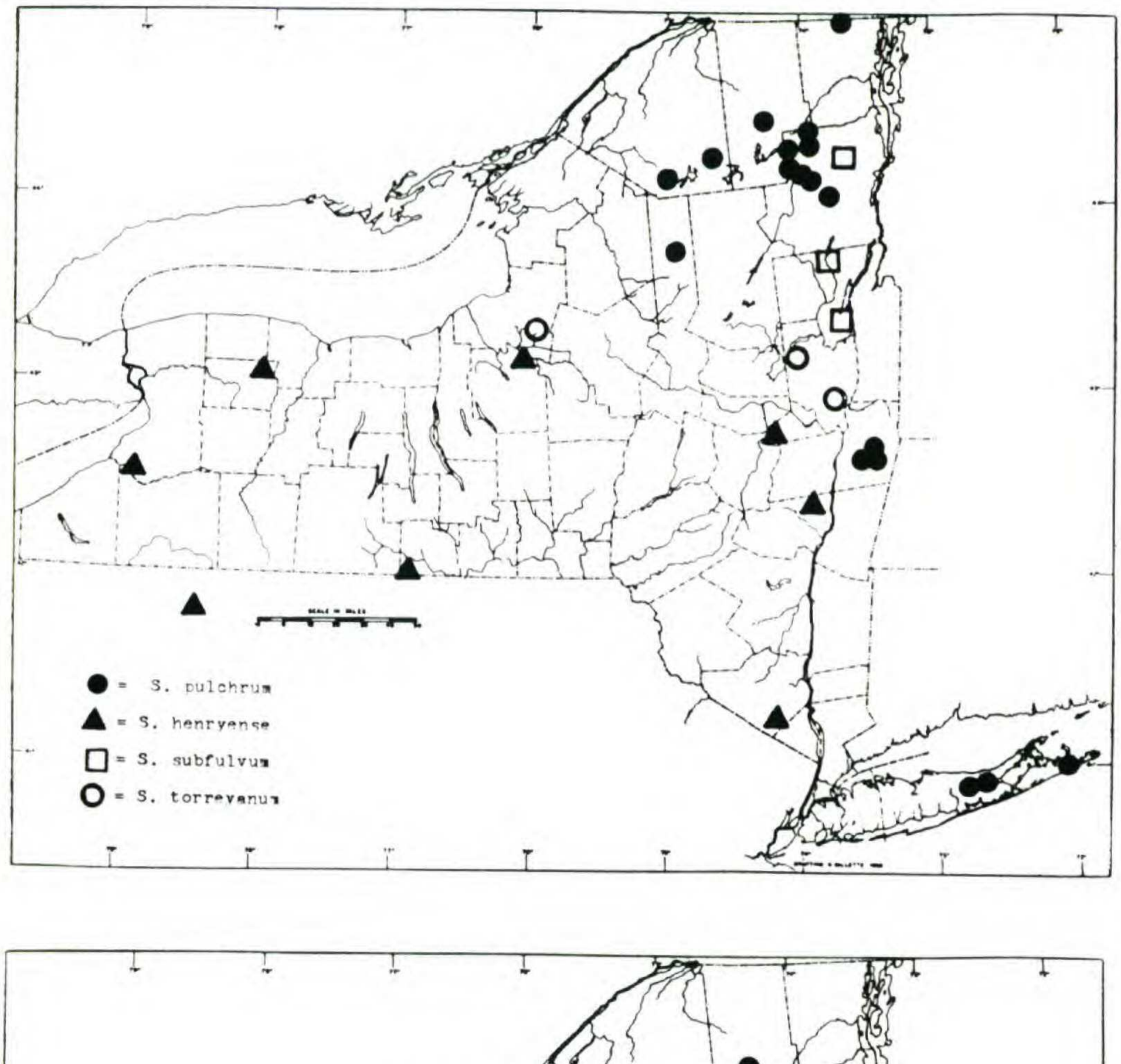
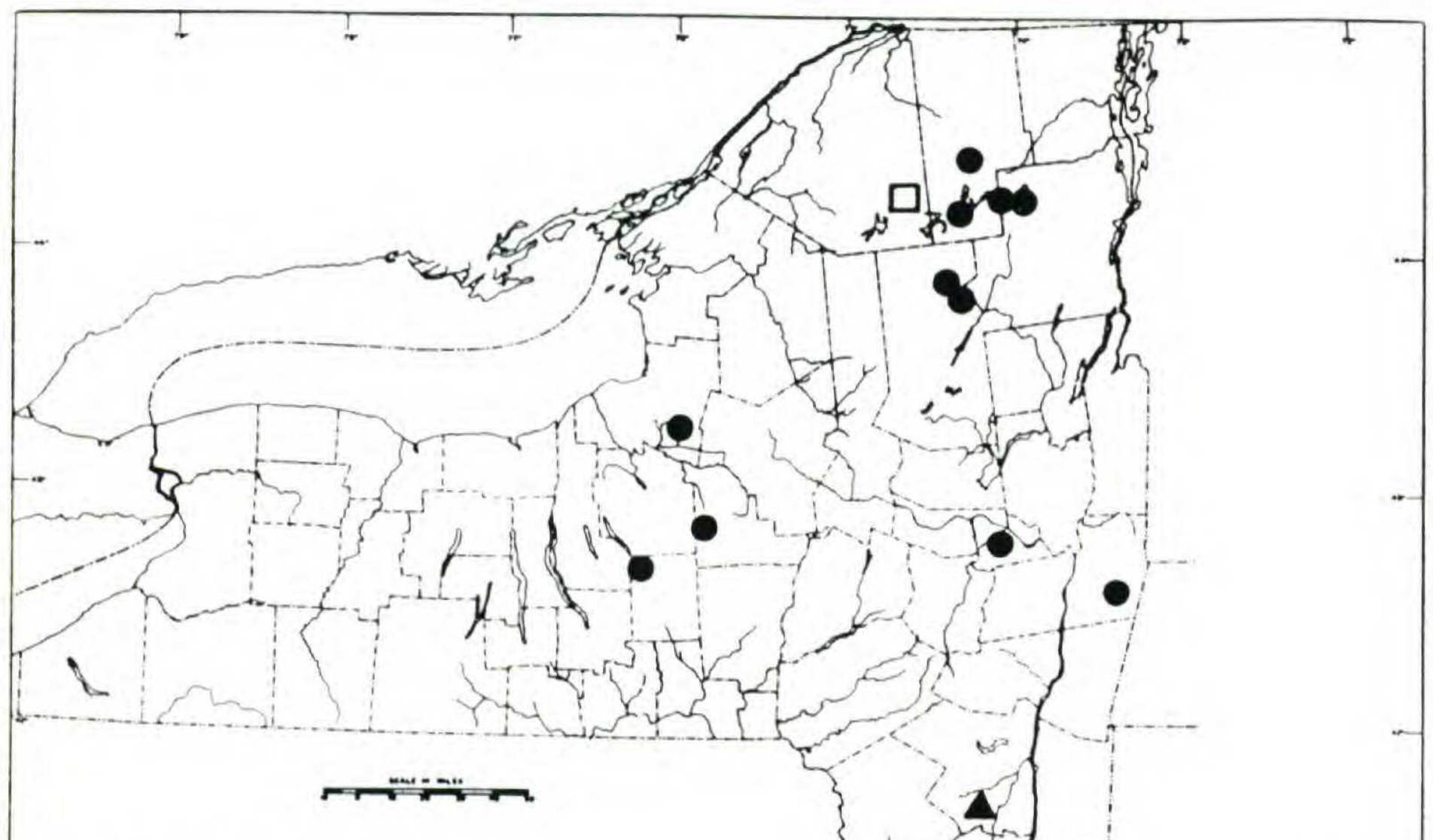
Recent collecting and herbarium studies reveal interesting new distributional records for several species of *Sphagnum* in the northeastern United States. Most of the records are from New York, and these are presented on the accompanying maps. Collection numbers, unless otherwise indicated, are those of the author. Duplicates for most stations collected by the author are at NYS, and many are also at NY and SU-CF (=S.U.N.Y. College of Environmental Science and Forestry).

Sphagnum henryense Warnst. A more difficult taxon than the literature would indicate, *S. henryense* has frequently been mistaken for *S. palustre* L., *S. papillosum* Lindb., or *S. imbricatum* Russow. Forms of *S. henryense* lacking the characteristic worm-like ridges on the hyaline cell walls where they overlie chlorophyll cells are especially difficult to identify. Such forms can usually be separated from the very similar *S. palustre* by the pore characteristics of the convex surface of the branch leaf. In *S. henryense*, the hyaline cells have numerous small round pores along the commissures, often 10 to 20 per cell, and usually lack large membrane gaps near the leaf apex. *S. palustre*, on the other hand, has hyaline cells with fewer and more elliptic pores as well as membrane gaps near the leaf apex. Macroscopically, well developed forms of *S. henryense* may be recognized by their reddish-brown pigmentation (often visible in the capitulum) and a flattened capitulum with small pointed head branches. In contrast, *S. palustre* is browner and typically has a rounded capitulum with the head branches blunter and more obese.

Sphagnum henryense is fairly widespread near the coast from Long Island, N.Y. (Ketchledge 1957) south to Florida


● = S. pulchrum
▲ = S. henryense
□ = S. subfulvum
○ = S. torreyanum


● = S. riparium
○ = S. tenellum
□ = S. jenseni
▲ = S. strictum

and westward to Texas. The Massachusetts station reported here represents a northward extension of this coastal range.

The inland stations extending into western New York and Pennsylvania are more surprising, however, but can be considered, perhaps, as analogous to similar vascular plant distributions noted by Fernald (1937). On this basis, one might expect to find *Sphagnum henryense* in other Great Lakes states such as Ohio and Michigan as well as southern Ontario.

In comparing *Sphagnum henryense* and *S. palustre* from inland stations, one particularly interesting pattern emerges. Where it is found, *S. henryense* is normally an obvious and abundant member of its plant community. *S. palustre*, on the other hand, although found at many more inland locations, typically occurs as a minor vegetational element, usually as a few scattered hummocks. Limited observations on Long Island indicate the same pattern may also hold in coastal areas. The factors responsible for this difference are unknown.

New York: ERIE CO.: Collins, *Glowny* 10850, 10848 (NYS). GENESEE CO.: Bergen Swamp, *Durand* 3642, 3624 (CU), *Winne* 1590 (CU), *S. J. Smith* 47742, 47982 (NYS). CHEMUNG CO.: Winter Bog, 1594, 2168, 2170, *Winne* 2094, 2083 (NYS). ONONDAGA CO.: Cicero Swamp, 2852. SCHENECTADY CO.: Featherstonhaugh Lake, 2142, 2146. GREENE CO.: Grapeville, *S. J. Smith* 48750 (NYS). ORANGE CO.: Sterling Forest, *G. L. Smith* 2666 (NY). CATTARAUGUS CO.: St. Bonaventure Campus, *Boehner*, Aug. 1, 1940 (St. Bonaventure Coll.). **Massachusetts:** SUFFOLK CO.: Milton, *Eaton & Faxon*, Sphagna Boreali-Americana #159. **Pennsylvania:** MCKEAN CO.: Smethport, *Glowny* 12007.

Sphagnum portoricense Sull. The previously known northern limit for *S. portoricense* was on Long Island, N.Y. (Mapes 1962). The northern range extreme is now extended to Mt. Desert Island, Maine, where a collection was made at a site strikingly different from those at the stations formerly thought to be the most northerly. On Long Island and in New Jersey (Andrews 1912) *S. portoricense* is aquatic in nature, being confined to shallow sandy-bottomed ponds. On Mt. Desert Island it was clearly

non-aquatic, with the plants being found at the margin of Big Heath, a large open bog, where they formed a carpet well above the water table along a small water course in the shade of black spruce. One possible explanation may lie in the high humidity characteristic of Big Heath, which is situated very near the coast and often shrouded in fog. *S. portoricense* also forms non-aquatic carpets in the very humid environment of the high-elevation cloud forests of Puerto Rico.

Maine: Mt. Desert Island, Big Heath, 2030.

Sphagnum strictum Sull. The discovery of *S. strictum* in New York was not unexpected because of its occurrence northward and southward along the Atlantic coast (Maass 1966). The record from the Shawangunk Mountains of upstate New York is, however, unusual in view of the close affinity for the coastline that *S. strictum* exhibits in the northern part of its range (Maass 1966).

Sphagnum strictum, like the closely related *S. compactum* DC., is a pioneer species. It is found on more organic and shaded substrates than the latter species.

New York: ULSTER CO.: Lake Minnewaska, *S. J. Smith* 48953 (NYS). SUFFOLK CO.: Riverhead, Third Pond, *Latham* 34419 (CU, NYS); Sandy Pond, 2251, 2205, 2193, *Mapes* 1435 (NYS); Swan Pond, *S. J. Smith* 48158 (NYS); Manorville, *Latham* 33936 (NYS, CU).

Sphagnum torreyanum Sull. (*S. cuspidatum* var. *torreyi* (Sull.) Braithw.). *Sphagnum torreyanum* is reported here for the first time from upstate New York. Like *S. henryense,* it was previously known only from coastal locations, in this case from Newfoundland to North Carolina (Andrews 1938).

In upstate New York, as on Long Island, it occurs as an aquatic in poor fens, often intermixed with *S. cuspidatum* Hoffm.

New York: OSWEGO CO.: Kibbe Lake, 1521, 1610. SARATOGA CO.: Mulleyville Pond, *S. J. Smith* 46881, 46882 (NYS); Luther's Woods, 2163.

Sphagnum riparium Ångstr. The range of *S. riparium*, previously reported southward to New Hampshire, Michigan, Wisconsin, and Washington (Andrus & Layser 1971), is now further extended into New York. A robust northern species, it typically grows in moderately minerotrophic sites near the margins of poor fens associated with such *Sphagnum* species as *S. angustifolium* (Russow) C. Jens., *S. fallax* (Klinggr.) Klinggr., and *S. fimbriatum* Wils. Present collecting data indicates that *S. riparium* is a very minor element in New York mire vegetation.

New York: ESSEX CO.: Raybrook Bog, 1661; Peninsula Nature Trails, 2152. FRANKLIN CO., Upper St. Regis Lake, 1707; 0.6 mi. E. of Corey's, 2816. HAMILTON CO.: 4 mi. S. of Long Lake, 1969; Johnny Mack Bk. fen, 2846. OSWEGO CO.: Kibbe Lake, 1528, 1529. CORTLAND CO.: Little York Lake, 2795. MADISON CO.: Nelson Swamp, 2778. SCHENECTADY CO.: Featherstonhaugh Lake 2134. RENSSELAER CO.: Round Pond outlet, 1884; ¼ mi. NE. of Round Lake, 1914.

Sphagnum pulchrum (Braithw.) Warnst. A suboceanically distributed species, in eastern North America *S. pulchrum* is known from the arctic (Persson & Sjörs 1960) south along the coast to New Jersey (Andrews 1938) and inland around the Great Lakes to Michigan (Crum & Miller 1969) and Wisconsin (Andrews 1938). The only previous New York report (Ketchledge 1957) is from Big Moose Station, Herkimer Co. (Peck #45, NYS). The numerous New York records are not unexpected and fill in the known distributional pattern.

Sphagnum pulchrum is a characteristic poor fen species and occurs in both mire wide and mire edge vegetation, often in abundance. Typical associated *Sphagnum* species include *S. papillosum, S. majus, S. fallax, S. angustifolium* and *S. rubellum*.

New York: CLINTON CO.: Cannon Flatrock, 1997a. FRANKLIN CO.: Upper St. Regis Lake, 1808, 1811, 1346, 1725. ST. LAWRENCE CO.: Sevey Pond, 1978; Wanakena, 1481; Grass River Flow, 1990; 1 mi. E. of Sevey Corners, 1967, 1968. ESSEX CO.: Algonquin Peak, 1245, 1246, 1247, 1248, 1249; Raybrook Bog, 1283, 1288, 1671, 1282, 1821; Lower Cherry Patch Pond, 1389; Whiteface Mt., 1215; Lake Tear,

1333; between Scott and Wallface Ponds, 1351; near Scott Pond, 2425; Elk Lake, *Phelps* 100 (NYS). HERKIMER CO.: Big Moose Sta., *Peck* 45 (NYS). RENSSELAER CO.: Sand Lake, *Peck* 43 (CU, NYS); 1.5 mi. E. of Taborton, 2175, 2176, 2177, 2178; Bucks Corners, 1922. SUFFOLK CO.: Napeague Beach, 2357; 1 mi. E. of Manorville, 2867; Cedar Pond, *N. G. Miller* 6865 (NCH).

Sphagnum jensenii H. Lindb. (*S. annulatum* var. *porosum* (Schlieph. & Warnst.) Maass & Isov.). A far northern species, *S. jensenii* is noted for the first time for the U.S. east of Michigan (Maass 1967b). The collection site was at the margin of a large poor fen where it was growing in a shallow pool in the bog mat associated with *S. pulchrum, S. papillosum, S. subsecundum* Nees, *S. flexuosum* Dozy & Molk and *S. rubellum* Wils. Maass (1967b) gives an excellent account of the separation of *S. jensenii* from closely allied species.

New York: ST. LAWRENCE CO.: Sevey Pond, 2829, 2832, 2833.

Sphagnum tenellum (Brid.) Brid. *Sphagnum tenellum* was collected among sand dunes in a small bog pocket where *S. pulchrum* was also found. As in the case of *S. strictum,* this report fills a coastal distribution gap between Maine and New Jersey.

Wet hollows in ombrotrophic mires are the most frequent habitat of *Sphagnum tenellum.* Although such sites are found elsewhere on Long Island, they are devoid of the species. Lack of suitable habitat, therefore, is an unlikely explanation for its rarity on Long Island. Climatic factors are probably responsible, since on Long Island *S. tenellum* is very near the southern extreme of its eastern North American coastal distribution — this extreme being in New Jersey.

New York: SUFFOLK CO.: Napeague Beach, 2238.

Sphagnum subfulvum Sjörs. The single previous conterminous U.S. report for *S. subfulvum* is from Michigan (Crum & Miller 1969). It undoubtedly reaches its southern

range limit in New York. The only other published records for North America (Maass 1967a) give a range of "Greenland to Bay of Fundy and N. Ontario and from Alaska into western Yukon."

The collection sites were medium to rich fens, uncommon mire types in New York, and this may account for its extreme rarity in the state. A plant that typically forms low to medium hummocks, *Sphagnum subfulvum* was found associated with *S. warnstorfii* Russow, *S. contortum* K. F. Schultz, *S. centrale* C. Jens., *Scorpidium scorpioides* (Hedw.) Limpr., *Calliergonella cuspidata* (Hedw.) Loeske and *Campylium stellatum* (Hedw.) C. Jens. — all common rich mire species.

Sjörs' (1944) original species description contains an excellent discussion on the distinction of *Sphagnum subfulvum* from the similar *S. subnitens* Russow & Warnst. and *S. flavicomans* (Card.) Warnst.

New York: ESSEX CO.: Lost Pond, 1475. WARREN CO.: Rush Pond, 1860, 1865; Glen Lake, 1854, 1885, 1889, 1886, 1890; Jenck's Swamp, 2815.

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